



EVALUATION OF THE INVERTED TEE SHALLOW BRIDGE SYSTEM FOR USE IN KANSAS

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RESEARCH

Introduction

With the introduction of the pre-stressed concrete Inverted Tee (IT) girders as an alternative to the conventional concrete slab bridges, the distribution of live load in this system required considerable investigation. The approximate equations given in AASHTO LRFD can not be used for determining the distribution factors in the IT system because the required girder spacing conditions are not met. Therefore, there was a need for refined methods of analysis.

Project Objective

This report presents the comparison of the AASHTO LRFD and AASHTO Standard Specifications, ignoring the spacing conditions, with the results obtained from 2-dimensional grillage analysis and 3-dimensional finite element analysis.

Project Description

For this purpose, two software packages were used namely, RISA-3D for grillage analysis and GT STRUDL for finite element analysis. The parameters that were included in this study were span length, superstructure width, skew angle, number of lanes loaded, end support conditions and overhang width.

Project Results

Based on this study, simple equations for determining girder distribution factors in IT bridges have been developed. Additionally, the effect of using both the KDOT design procedures and AASHTO LRFD design procedures on the required number of strands was investigated.

Report Information

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